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EXAMINER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/824,904  
Filing Date: April 14, 2004  
Appellant(s): LEWIS ET AL.

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John A. Wilberg  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 1/25/10 appealing from the Office action mailed 1/23/09.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The appellant's statement of the related appeals and interferences contained in the brief is correct. The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:  
Claims 1, 13, 25, and 32-46.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement on the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejections (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

6,424,345 B1	SMITH ET AL	7-2002
6,191,800 B1	ARENBURG ET AL	2-2001

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 13, 25, and 32-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (U.S. Patent No. 6,424,345), herein after Smith, and Arenburg et al (U.S. Patent No. 6,191,800 B1), herein after Arenburg.

Claims 1, 32, 33 (Method)

Claims 13, 35, 36 (Computer Readable Medium)

Claims 25, 38, 39 (System)

Regarding claims 1, 13, and 25, Smith teaches the claim for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives, comprising storing the plurality of primitives in a plurality of bins and rendering the plurality of primitives by rendering each of the plurality of bins bin by bin, by disclosing *[figure 3; column 4, lines 61-67; column 5, lines 1-22]*.

Smith does not expressly teach adjusting the capacity of one or more of the bins based on the ability of the system to process the primitives of a given bin in parallel. Arenburg teaches dividing a viewable area of a display device into a plurality of tiles and adjusting sizes of tiles in order to better manage graphic workloads *[column 2, lines 55-*

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63; *column 3, lines 12-30*]. A multi-processor system may be used where concurrent rendering processes can be distributed among several processes in a cluster [*column 7, lines 19-23*]. Since Smith teaches rendering a graphical image on a display of a system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the sizes of tiles to balance graphics workload, as taught by Arenburg. This would allow for better management of graphic workloads when rendering graphics.

Regarding claims 32, 35, and 38, Smith and Arenburg teach the claim with respect to claims 1, 13, and 25 respectively, wherein adjusting the capacity of one or more of the bins during operation of the system comprises dynamically adjusting the capacity of one or more of the bins during operation of the system, by disclosing dynamically adjusting the sizes [*column 4, lines 39-51*].

Regarding claims 33, 36, and 39, Smith and Arenburg teach the claim with respect to claims 1, 13, and 25 respectively, wherein adjusting the capacity of one or more of the bins during operation of the system comprises adjusting the capacity of one or more of the bins based on the number of primitives in a given bin and based further on the number of processors available to process the primitives, by disclosing adjusting the size based on time required to render a portion of the image [*column 4, line 61 to column 5, line 1*]. The time required to render a portion of the image is dependent upon the number of primitives and the processors available to process the primitives.

Claims 34, 43, 44 (Method)

Claims 37, 45, 46 (Computer Readable Medium)

Claims 40-42 (System)

Regarding claims 34, 37, and 40, Smith teaches the claim for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives, comprising storing the plurality of primitives in a plurality of bins and rendering the plurality of primitives by rendering each of the plurality of bins bin by bin, by disclosing *[figure 3; column 4, lines 61-67; column 5, lines 1-22]*.

Smith does not expressly teach combining bins or portions of bins during operation of the system. Arenburg teaches dividing a viewable area of a display device into a plurality of tiles and adjusting sizes of tiles in order to better manage graphic workloads *[column 2, lines 55-63; column 3, lines 12-30]*. *[Figures 3A]* shows three tiles and *[figure 3B]* shows the three tiles after their sizes have been adjusted. Since Smith teaches rendering a graphical image on a display of a system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the sizes of tiles to balance graphics workload, as taught by Arenburg. This would allow for better management of graphic workloads when rendering graphics.

Regarding claims 43, 45, and 41, Smith and Arenburg teach the claim wherein combining bins or portions of bins during operation of the system comprises combining bins or portions of bins based on the ability of the system to process the primitives of a

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given bin in parallel, by disclosing adjusting the size based on time required to render a portion of the image *[Arenburg, column 4, line 61 to column 5, line 1]*. A multi-processor system may be used where concurrent rendering processes can be distributed among several processes in a cluster *[Arenburg, column 7, lines 19-23]*.

Regarding claims 44, 46, and 42, Smith and Arenburg teach the claim wherein combining bins or portions of bins during operation of the system comprises combining bins or portions of bins based on the number of primitives in a given bin and based further on the number of processors available to process the primitives, by disclosing adjusting the size based on time required to render a portion of the image *[Arenburg, column 4, line 61 to column 5, line 1]*. The time required to render a portion of the image is dependent upon the number of primitives and the processors available to process the primitives.

#### **(10) Response to Argument**

Appellant argues claims 1, 13, 25 and 32-46 are not unpatentable under 35 U.S.C. § 103(a) over Smith, et al. (US 6,424,345) and Arenburg, et al (US 6,191,800)

A. Appellant argues claims 1, 13, 25, 32, 33, 35, 36, 38 and 39 are not anticipated under 35 U.S.C. 103(a) by Smith et al. (US 6,424,345) and Arenburg et al, (US 6,191,800)



Regarding independent claim 1, the Appellant alleges that Smith et al (U.S. Patent No. 6,424,345) and Arenburg et al (U.S. Patent No. 6,191,800 B1), as described in the previous Office action, do not explicitly teach, “adjusting the capacity of one or more of the bins based on the ability of the system to process the primitives of a given bin in parallel” *[see page 8, paragraph 2 of Appellant's brief]*. Examiner notes that the limitation is met if the ability of the system to process the primitives of a given bin in parallel has at least some effect on the capacity (i.e. size) of at least one bin. Contrary to Appellant's arguments, Smith and Arenburg disclose that the size of a bin is based on the time required to render a portion of the image *[Arenburg, column 3, lines 12-30; column 4, line 61 to column 5, line 1]*. A multi-processor system may be used where concurrent rendering processes can be distributed among several processes in a cluster *[Arenburg, column 7, lines 19-23]*. It is well known to one of ordinary skill in the art that concurrent rendering affects the time required to render a portion of the image. Therefore, the size of the bin is based on the ability to process the primitives of a given bin in parallel.

Appellant alleges that Examiner fails to provide a clear articulation of the reasons why it would have been obvious for one of skill in the art to combine the Smith and Arenburg references *[see page 8, paragraph 3 of Appellant's brief]*. Contrary to Appellant's arguments, Arenburg discloses using their method for improved balancing of graphics workloads when a graphic animation sequence is rendered by multiple processes *[column 2, lines 55-63]*. Since Smith discloses rendering a graphical image on a display of a system, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to adjust the sizes of tiles to balance graphics workload, as taught by Arenburg. This would allow for better management of graphic workloads when rendering graphics.

Similar arguments have been presented for independent claims 13 and 25 and thus, Appellant's arguments are not persuasive for the same reasons.

Appellant states that dependent claims 32, 33, 35, 36, 38, and 39, recite all the limitations of the independent claims, and thus, are allowable in view of the remarks set forth regarding independent claims 1, 13, and 25. However, as discussed above, Smith and Arenburg are considered to teach claims 1, 13, and 25 and consequently, claims 32, 33, 35, 36, 38, and 39 are rejected.

B. Appellant argues claims 34, 37, and 40-46 are not anticipated under 35 U.S.C. 103(a) by Smith et al. (US 6,424,345) and Arenburg et al. (US 6,191,800)

Regarding independent claim 34, Appellant alleges that Smith and Arenburg do not explicitly teach combining bins *[see page 10, paragraph 1 of Appellant's brief]*. Examiner notes that the claim language recites "combining bins or portions of bins". Contrary to Appellant's arguments, *[Arenburg, figure 3A]* shows three tiles and *[Arenburg, figure 3B]* shows that the three tiles have been adjusted such that the leftmost and rightmost tiles have been combined with a portion of the center tile to create the new sizes. By adjusting the sizes of the bins, a portion of what was once the center bin has been combined with the left and right bins.

Appellant alleges that Examiner fails to provide a clear articulation of the reasons why it would have been obvious for one of skill in the art to combine the Smith and Arenburg references *[see page 8, paragraph 3 of Appellant's brief]*. Contrary to Appellant's arguments, Arenburg discloses using their method for improved balancing of graphics workloads *[column 2, lines 55-63]*. Since Smith teaches rendering a graphical image on a display of a system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the sizes of tiles to balance graphics workload, as taught by Arenburg. This would allow for better management of graphic workloads when rendering graphics.

Similar arguments have been presented for independent claims 37 and 40 and thus, Appellant's arguments are not persuasive for the same reasons.

Appellant states that dependent claims 41-46 recite all the limitations of the independent claims, and thus, are allowable in view of the remarks set forth regarding independent claims 34, 37, and 40. However, as discussed above, Smith and Arenburg are considered to teach claims 34, 37, and 40 and consequently, claims 41-46 are rejected.

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**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Alvin H Tan/  
Examiner, Art Unit 2173  
April 12, 2010

/Kieu Vu/  
Supervisory Patent Examiner, Art Unit 2173

/William L. Bashore/  
Supervisory Patent Examiner, Art Unit 2175